

9 August 1963

25X1A

[Redacted]

Dear Jarvis:

Subject: Final Engineering Report - "Feasibility  
Study of a Diffraction Viewer"

Enclosed is a letter I sent to the contracting officer and three (3) copies of the final report. I also sent him an invoice, and I would greatly appreciate your advising him of your comments regarding the acceptance of our work and report so that he could take action to process payment.

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We are about completed in gathering costs for the breadboard. With summer vacations all over it has taken a few extra weeks. [Redacted] I would appreciate a phone call whether or not there are any changes in the breadboard concept as we have recorded it in the final report. I would like to visit you within the next few weeks; and, if possible, definitize the follow-on phase.

Please send my best to [Redacted]

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Sincerely,  
[Redacted]

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Enclosures (4)

DECLASS REVIEW by NIMA/DOD

9 August 1963

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Enclosed herewith is a copy of [redacted] final engineering report for a Phase I investigation of the feasibility of employing crossed diffraction gratings in a rear projection direct image viewer under [redacted]

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The Phase I theoretical and experimental study results have established feasibility and have shown that at viewing magnifications between 2X and 25X the diffraction grating viewing concept produces a significant enlargement of the exit pupil at no reduction in quality over other forms of direct image viewing. Further study results indicate that viewing magnification of the order of 50X are potentially realizable with the diffraction viewing technique with certain advancements in the fabrication of high quality diffraction gratings.

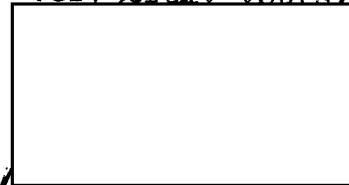
The report contains a series of recommendations for the Phase II work and descriptions of several alternate technical approaches of achieving 50X magnification levels in rear projection direct image viewers.

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[redacted] is preparing a work statement and a CPFF cost estimate for the design and fabrication of a breadboard as described in the report and as requested by the customer's technical representative. This work statement will be submitted to you shortly.

We have appreciated the opportunity of doing this work for you, and trust that our efforts were satisfactory.

Very truly yours,



25X1A

25 June 1963

MEMORANDUM FOR THE RECORD

25X1A SUBJECT: Trip Report, [REDACTED]

I. Purpose of Visit: To coordinate on pertinent contracts and review progress to date on the Image Evaluation Study being conducted for the Air Force.

II. Persons and Places Visited:

[REDACTED]

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DISCUSSION:

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[REDACTED]

25X1A The purpose of the visit to [REDACTED] subcontractor to 25X1A [REDACTED] was to review the progress and observe the basic feasibility demonstration as per Phase I of the contract. It was determined that Phase I, Investigative Phase, did prove feasibility and that Phase II, Breadboard Phase, should proceed.

With a 'crude' lensbench set up it was proven that a high quality image, with high resolution and contrast rendition could be maintained to approximately 25X magnification. There was a fair degree of head movement retained but higher magnifications will require a fixed head position or a slaved exit pupil.

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[REDACTED] will deliver shortly the Phase I report and a statement of work for Phase II, for approval before proceeding.

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[REDACTED]

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I examined drawings and reviewed design progress on the Gamma I rectifier with [REDACTED]. Progress is satisfactory.



SECRET

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[ ] conducted a tour of the [ ]. Considerable time was spent with [ ], et al, discussing results and findings on the Image Evaluation Study being conducted for the Air Force. I would be delighted to discuss the work with anyone interested. The prime result that appears to be forthcoming will not be a method, precise number, bar target, or frequency modulation transfer function but a lengthy dissertation of tests, experiments and findings pointing out the almost insurmountable magnitude of the problem at hand. It will, if read and digested, be an excellent guide on tests/test methods that will best define a particular system.

*gk*  
[ ]  
Development Branch, P&DS

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